

**METHODS AND COMPOSITIONS RELATING TO PHOSPHORYLATED MYOSIN
LIGHT CHAIN 1**

Introduction

This application claims the benefit of priority from
5 U.S. provisional application Serial No. ^{60/315,886} ~~(not yet assigned)~~
filed August 29, 2001.

R40
12/23/03

Field of the Invention

The present invention relates to the identification of
two novel phosphorylation sites of myosin light chain 1
10 (MLC1). Phosphorylation of MLC1 at these sites was
demonstrated to increase *in vivo* following pharmacologic
preconditioning with adenosine. Monitoring MLC1
phosphorylation provides a useful means for identifying new
cardiac or skeletal muscle protective agents, monitoring the
15 extent of preconditioning of cardiac and skeletal muscle
tissue, and monitoring the status of a subject with cardiac
or skeletal muscle damage. Further, altering MLC1
phosphorylation serves as a means for changing contractility
of skeletal and cardiac muscle tissue and for protecting
20 skeletal and cardiac muscle tissue from damage caused by
conditions and/or factors including, but not limited to,
cardiomyopathies, hypertension, free radicals, ischemia,
hypoxia, and ischemia/hypoxia with reperfusion.

Background of the Invention

25 Ischemic preconditioning (PC), a phenomenon which exists
in all species examined, including humans (Cohen, M.V. and
Downey, J.M. Lancet 1993 342:6; Yellon et al. Lancet 1993
342:276-277; Kloner et al. J. Am. Coll. Cardiol. 1994